



# ARKANSAS DEPARTMENT OF EDUCATION

## Quality Digital Learning Study Minutes October 9, 2013

**Members present:** Dr. Ed Franklin, Dr. Richard Abernathy, Representative Dan Douglas, Len Pitcock, Adrienne Gardner, Dr. Jay Barth, Cody Decker, Dr. John Ahlen, Claire Bailey, and Katie Burns.

The meeting was called to order at 10:00. Seventeen guests were in attendance. Chair Franklin introduced James Werle, Director of the Internet2 K20 Initiative, who joined the meeting via conference call. Committee members received a handout about Internet2.

Mr. Werle began by providing background on I2. It was founded in 1996 by a group of research scientists and operates as a not-for-profit. Its advanced network offers a national platform for educational applications and, in 2010, it was awarded a stimulus grant of 62.5 million dollars to greatly expand its capacity. Community anchor institutions are able to connect to I2 through their Research and Education (R & E) networks. Mr. Werle estimates that 93,000 anchor institutions are currently connected to I2. He pointed out that the network cannot exist without partnering with local carrier communities.

Mr. Werle told committee members about several things K12 students are able to do with a connection to I2:

- They have access to rich multi-media digital connections like the Library of Congress and other museums and libraries.
- They can experiment with non-compressed standard and 3D video.
- They can participate in first-hand in scientific discovery. For example, the European Organization for Nuclear Research's (CERN) super-collider information is on I2.
- They have direct access to scientists and experts via high end video conferencing, including a recent opportunity to interview former President Jimmy Carter.
- They can also access remote instruments e.g. a series of underwater cameras monitoring tectonic plates on the west coast of the United States.

Mr. Werle told the committee that both the Smithsonian and National Park Service are working on educational content for K12 students through I2. He believes the educational possibilities for learning are endless.

Chair Franklin invited members to ask questions. Dr. Ahlen asked Mr. Werle if he had models of working with local providers. Mr. Werle responded that California is a great example of local telecommunications companies working with the R&E network there. He offered to put the committee in touch with people in California. Dr. Franklin also pointed out that Nebraska has a good model.

Dr. Abernathy asked Mr. Werle for a breakdown of which states allow K12 to connect to their research and education network (R&E). Mr. Werle replied that of the 42 states with R&E networks, Arkansas is the only one that doesn't allow K12 schools to connect. Dr. Abernathy followed up by asking if schools can still access programs at the places like the Smithsonian if they aren't connected to I2. Mr. Werle responded that they can access basic content without going through an R&E network, but I2 will provide high-quality, more meaningful programs via R&E networks because they have more bandwidth/capacity. He told the committee that they can see examples of available content and applications on I2's website: <http://www.internet2.edu/>.

Claire Bailey asked how to become a member of I2. Mr. Werle replied that AREON is already an I2 member and the AREON network can connect Arkansas's K12 schools to I2.

Chair Franklin thanked Mr. Werle and introduced David Merrifield, Executive Director of the Arkansas Research and Education Optical Network. Mr. Merrifield began by explaining the history of AREON. He informed the committee that all four-year and most two-year colleges in Arkansas are connected in the state. Almost all members have direct fiber connections. The fiber backbone, which is spread over five states predominantly along interstate highways, provides "huge" amounts of bandwidth to members. Mr. Merrifield discussed access and capability specifics, and said that, in a nutshell, AREON is a fiber connected, high speed, carrier-class connection. AREON is happy to assist K12 in any way that would be appropriate.

Dr. Abernathy asked why K12 could not connect to AREON. Mr. Merrifield replied that state statutes currently prohibit K12 from connecting. Dr. Abernathy told the committee that he had heard that bonds were sold that prohibited connecting to AREON. Mr. Merrifield replied that he did not think that was true.

Dr. Barth asked why AREON could not connect the last three two-year schools that aren't connected. Mr. Merrifield replied that financial reasons prohibited connection.

Representative Douglas asked how much universities pay for AREON. Mr. Merrifield outlined two fee structures and stated that universities pay anywhere from \$12,000-90,000 annually, depending on their size.

Ms. Baily asked how AREON provides security and continuity of service. Mr. Merrifield replied that AREON provides transport across the network, but universities provide their own security. There is a lot of redundancy built into the network as a way to guarantee continuity of service. Providers are responsible for that continuity of service on fiber that AREON leases from them.

Dr. Abernathy asked the cost per MB, which Mr. Merrifield stated is \$10 but likely to lower soon.

Mr. Pitcock asked what part of the AREON network providers own. Mr. Merrifield replied that most of the 2,200 miles of fiber is owned by providers, as AREON only owns 100 miles. Mr. Pitcock followed up by asking if existing AREON leases would allow AREON to provide service to K12. Mr. Merrifield said that there are likely some of both kinds of contracts—those with and without restrictions. Mr. Pitcock then asked if the last mile would still need to be provided by private providers, since AREON is a backbone network. Mr. Merrifield said yes.

Ms. Bailey asked if AREON is able to use highway department fiber. Mr. Merrifield responded that the highway department only allows access to utilities, and since broadband is not a utility, AREON was not able to use that fiber.

Dr. Barth inquired about the range of bandwidth that colleges are purchasing. Mr. Merrifield responded that they purchase anywhere from 150 Mb to 2 Gb.

Ms. Bailey asked if standards for equipment were established. Mr. Merrifield explained that the only standards ARE ON has are related to functionality.

Mr. Pitcock asked if K12 would have to become members of AREON. Mr. Merrifield explained that it is yet to be decided. Some states have school district memberships and some have a larger entity (like the Department of Education) as members.

Ms. Burns asked if E-Rate would be affected since AREON cannot get E-Rate reimbursement. Guest Don McDaniel of DIS interjected that commodity internet is eligible but AREON would need a telecommunications SPIN. Ms. Gardner pointed out that the FCC said during her recent meeting with them that a telecommunications SPIN might not be necessary, but the government shut down has made it impossible to ask.

Chair Franklin recognized Dr. Abernathy to give a report on AAEEA. Dr. Abernathy said that they have an E-Rate awareness training scheduled for the fall administrators' conference. There are also three additional E-Rate trainings scheduled in November.

Chair Franklin recognized Cody Decker. Mr. Decker spoke about the new questions added to the bandwidth survey: 1) If the school district does not have a MAN and one was provided, what building would be the hub? and 2) How would the buildings connect to the hub? He pointed out that school districts have provided contact information on the survey, so they should be contacted if any incorrect information has been reported.

Ms. Burns noted that when they enter information it is immediately live and if it is inaccurate, the provider doesn't know until it's in the newspaper. Chair Franklin asked if she was requesting that providers be given the opportunity to review information before it goes live. Ms. Bailey stated that if you FOIA a contract, providers redact cost. Guest Julie Lombard of OSP stated that if a vendor submits a bid, the cost is not proprietary. Some discussion followed about the implications of FOIA on the bid process. Ms. Burns noted that inaccurate information is an unintended consequence of districts self-reporting data, and Chair Franklin agreed that we need to make sure information is as accurate as possible.

Chair Franklin recognized Claire Bailey. She noted that tech plan addendums are due 12/21 and asked who is responsible for making sure they get done. It is likely Belinda Kittrell at ADE. Ms. Bailey expressed a desire for the committee to make recommendations for those addendums.

Chair Franklin recognized Adrienne Gardner. Ms. Gardner showed the hub analysis map, which shows individual school buildings, district lines, and any obstacles around school buildings (such as mountains, rivers, roads).

Chair Franklin then recognized Kendall Gibbons, who is on the FASTER Engineering subcommittee. Mr. Gibbons recognized the other FASTER subcommittee members present. He told the committee that the speeds being discussed necessitate fiber, and it's best to get started as soon as possible. Not all students are online at the same time today, but that day is coming. His committee has been looking at recommending one metropolitan area network (MAN) per district. He showed possible network configurations. He pointed out that internet service providers (ISPs) have a lot of opportunity for business if AREON provides the backbone, for ex. transport to the hub and connections between schools in the district.

Mr. Pitcock asked if we know how many schools are not able to get 100 kbps. Mr. Decker replied that 164 districts don't have that speed, to which Mr. Pitcock replied that that was not what he asked. Chair Franklin said that is being researched. Mr. Pitcock said that we don't know the problem. Ms. Gardner stated that the problem is multi-faceted. Dr. Barth asked if getting the unconnected community colleges connected (DeQueen, Helena, and Mena) would help. Mr. Merrifield responded that there are too many factors to accurately answer that question. Mr. Gibbons stated that either DIS or managed services will be needed to help schools, as there is concern that not all schools have tech coordinators that can manage local networks. Ms. Bailey said that tech coordinators should be educated. Chair Franklin agreed, stating that staff development is essential.

Chair Franklin reminded the group that their report comes out in December, so more meetings will likely be needed. He announced the next meeting date of November 14.

The meeting adjourned at 12:08.